Bill as Introduced

SB 95 – AS AMENDED BY THE SENATE

02/23/11 0295s

2011 SESSION

11-0923
04/09

SENATE BILL *95*

AN ACT establishing a commission to study youth sports concussions and other concussions received while at school.

SPONSORS: Sen. Houde, Dist 5; Sen. D'Allesandro, Dist 20; Sen. Kelly, Dist 10; Sen. Merrill, Dist 21; Sen. Larsen, Dist 15; Sen. Boutin, Dist 16; Sen. Carson, Dist 14

COMMITTEE: Health and Human Services

AMENDED ANALYSIS

This bill establishes a commission to study youth sports concussions and other concussions received while at school.

Explanation: Matter added to current law appears in ***bold italics.***
Matter removed from current law appears [~~in brackets and struckthrough.~~]
Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Eleven

AN ACT establishing a commission to study youth sports concussions and other concussions received while at school.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 Commission Established. There is established a commission to study youth sports concussions and other concussions received while at school.

2 Membership and Compensation.

I. The members of the commission shall be as follows:

(a) A physician licensed in New Hampshire or other health care professional, appointed by the governor.

(b) A member from the New Hampshire School Boards Association, appointed by that association.

(c) A member from the New Hampshire Athletic Trainers' Association, appointed by that association.

(d) A member from the Brain Injury Association of New Hampshire, appointed by that association.

(e) An athletics coach from a New Hampshire high school, appointed by the governor.

(f) The director of the division of parks and recreation, or designee.

(g) A member from the New Hampshire Interscholastic Athletic Association, appointed by that association.

(h) A member from the New Hampshire School Nurses' Association, appointed by that association.

(i) The president of a New Hampshire company specializing in head impact biomechanics, or designee, appointed by the governor.

(j) The bureau chief of the bureau of developmental services, department of health and human services, or designee.

II. Members of the commission shall serve without compensation.

3 Duties.

I. The commission shall study:

(a) Youth sports concussions and other concussions received while at school and how the adults involved should educate youths and their parents or guardians about the nature and risk of head injury and concussion, and how best to identify and handle suspected and confirmed youth concussions and brain injuries.

(b) The logistics of implementing a so-called "return-to-play" system, including who can provide medical clearance in a return-to-play system.

(c) What training or certification is necessary to certify that a youth is safe to return to play.

(d) The impact, including but not limited to costs and liabilities, on municipalities and school-based athletic activities of implementing a return-to-play system.

II. The commission shall solicit the advice and expertise of helmet manufacturers on concussion-related issues and any other issue that the commission deems appropriate.

4 Chairperson; Quorum. The members of the commission shall elect a chairperson from among the members. The first meeting of the commission shall be called by the first-named senate member. The first meeting of the commission shall be held within 45 days of the effective date of this section.

5 Report. The commission shall report its findings and any recommendations for proposed legislation to the president of the senate, the speaker of the house of representatives, the senate clerk, the house clerk, the governor, and the state library on or before November 1, 2011. The commission shall submit an electronic copy of the signed final report to the office of information technology which shall post the report on the state of New Hampshire's website.

6 Effective Date. This act shall take effect upon its passage.

Committee Minutes

STATE OF NEW HAMPSHIRE

HOUSE OF REPRESENTATIVES

SB 95

Office of the Speaker

MEMORANDUM

TO: Karen O. Wadsworth
House Clerk

FROM: William L. O'Brien
Speaker of the House

DATE: May 10, 2011

RE: Temporary Committee Assignments

Please be advised that the following representatives were assigned to the Committee on Education for today, May 10, 2011:

Rep. L. Mike Kappler to replace Rep. Jeffrey L. St. Cyr
Rep. Daniel C. Itse to replace Rep. Karen K. Hutchinson

WLO/sg
cc: House Majority Leader David J. Bettencourt
House Democratic Leader Terie Norelli
✓Rep. Michael A. Balboni, Committee Chairman
Rep. L. Mike Kappler
Rep. Daniel C. Itse

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TDD Access: Relay NH 1-800-735-2964

STATE OF NEW HAMPSHIRE

HOUSE OF REPRESENTATIVES

Office of the Speaker

MEMORANDUM

TO: Karen O. Wadsworth
House Clerk

FROM: William L. O'Brien
Speaker of the House

DATE: May 18, 2011

RE: Temporary Committee Assignment

Please be advised that Rep. Anne C. Grassie was appointed to the Committee on Education for the day on Tuesday, May 17, to replace Rep. Barbara Shaw.

WLO/sg
cc: House Majority Leader David J. Bettencourt
House Democratic Leader Terie Norelli
Rep. Michael A. Balboni, Committee Chairman
Rep. Anne C. Grassie

State House • Concord, New Hampshire 03301-4988 • Telephone: (603) 271-3661 • FAX: (603) 271-3309
TDD Access: Relay NH 1-800-735-2964

Speakers

SIGN UP SHEET

To Register Opinion If Not Speaking

Bill # SB 95 Date 5/10/11

Committee Education

** Please Print All Information **

Name	Address	Phone	Representing	(check one) Pro	Con
SENATOR SHARON CARSON	LONDONDERRY	271-2674	SD # 14	X	
SENATOR DAVID BOUTIN	HOOKSETT		DISTRICT #16	✓	
Rep Kate Miller	Meredith NH	279-4764		✓	
STUART I GUSTMAN MD	60 CHANDLER ST. CONCORD NH	603-223-8165		✓	
BOB DUNN		226-1000	Brain Injury Association of NH	X	
Sen Merrill			SD #21	X	
Sen Larsen			SD #15	X	
Sen Kelly			SD #10	X	

Hearing Minutes

HOUSE COMMITTEE ON EDUCATION

PUBLIC HEARING ON SB 95

BILL TITLE: (New Title) establishing a commission to study youth sports concussions and other concussions received while at school.

DATE: 5/10/11

LOB ROOM: 207 **Time Public Hearing Called to Order:** 1:05 pm

Time Adjourned: 2:05 pm

(please circle if present)

Committee Members: Reps. Balboni, Boehm, Hutchinson, Ladd, Fleck, Sc. Cyr, Brosseau, Greemore, Hill, Hoell, Jones, Lauer-Rago, Pitre, Gile, Shaw, Gorman and Frazer.

Bill Sponsors: Sen. Houde, Dist 5; Sen. D'Allensandro, Dist 20; Sen. Kelly, Dist 10; Sen. Merrill, Dist 21; Sen. Larsen, Dist 15; Sen. Boutin, Dist 16; Sen. Carson, Dist 14

TESTIMONY

* Use asterisk if written testimony and/or amendments are submitted.

***Senator Houde (Sponsor) – Supports Bill.**

- Referenced youth level concussions and other states such as Washington that have passed legislation addressing injury (see written attachment)
- Any legislation should address removal of a youth having a concussion from the athletic event until such time injury corrected with appropriate medical treatment

***Rep. Boehm – Opposes Bill**

- As a former school board member, he addressed guidelines already in place – NHIAA
- See written testimony
- NHIAA already accomplish objective of SB 95
- No athlete can practice or compete without passing minimum guidelines of NHIAA
- Participation in hands of trainer

***Isabel Bogacz, Tilton – Supports Bill**

- She spoke of having a concussion from/during field hockey game
- She said that her injury occurred at a private school while playing field hockey

***Stuart Glassman, MD, NH Medical Society – Supports Bill**

- Medical director for "concussion" and deals with this injury and supports need to protect all kids from brain injury
- Has developed protocols for schools
- Coach is the frontline adult who often has too provide first assistance
- Coaches do not have to have instruction on this topic prior to coaching

- See written pass-out
- State of Washington has developed and passed legislation addressing head injury
- Statutory language in Washington addresses all athletics/sports at school or in other events such as Pop Warner, having students 18 years or younger must be coached by medically trained coaching staff

Respectfully submitted,

Rick Ladd, Clerk

HOUSE COMMITTEE ON EDUCATION

PUBLIC HEARING ON SB 95

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Committee Members: Reps. Balboni, Boehm, Hutchinson, Ladd, Fleck, St. Cyr, Brosseau, Greemore, Hill, Hoell, Jones, Lauer-Rago, Pitre, Gile, Shaw, Gorman and Frazer, Keeppler

Bill Sponsors: Sen. Houde, Dist 5; Sen. D'Allensandro, Dist 20; Sen. Kelly, Dist 10; Sen. Merrill, Dist 21; Sen. Larsen, Dist 15; Sen. Boutin, Dist 16; Sen. Carson, Dist 14

TESTIMONY

* Use asterisk if written testimony and/or amendments are submitted.

SB 95
Concussions in School

(1)

(1) Sen Houde (Sponsor) supports
- referenced youth level concussions and other states such as Washington that have passed legislation addressing injury (see written attachment
- any legislation should address removal of a youth having a concussion from the athletic event until such time injury corrected w/ appropriate medical treatment.

(2) Ralph Boehm, Rep (against)
- as a school board member, he addressed guidelines already in place - NHIAA format
- see written testimony
- NHIAA already accomplish objective of SB 9
- No athlete can practice or compete w/o passing minimum guidelines of NHIAA
- Participation in hands of trainer

(3) Isabel Bogacz (Support) from Tilton
- She spoke of having a concussion from / during a field hockey game.
- She said that her injury occured at a private school while playing field hockey

(4) Stewart Glassman M.D.
- medical director for "concussion" and deals with this injury and is ~~an~~ a supports need to protect all kids from brain injury
- has developed protocals for schools

- coach is the frontline adult who often has to provide 1st assistance
- coaches do not have to have instruction on this topic prior to coaching.
- see written pass-out
- State of Washington has developed and passed legislation addressing head injury.
- Statutory language in Washington addresses all athletic/sports at school or in other events such as Pop Warner having students 18 years or younger must be coached by medically trained coaching staff.

Testimony

May 10, 2011

Dear Senator Houde, et al,

First of all please accept my apology for communicating in this manner however I will be out of town tomorrow on business and unable to testify at the hearing scheduled for the captioned bill. I had made arrangements for the Chairman of the NHIAA Sports Medicine Committee to be present but he just informed me that his school district cannot release him tomorrow. I would guess that one or two others from the committee should make the hearing just the same but I haven't been able to confirm that as yet.

Although this communication probably cannot be used as testimony and is undoubtedly against protocol, I did want to indicate my support of this legislation and the desire of this organization to sit as a member of the committee. Much of what is to be discussed is already standard practice for all NHIAA interscholastic events to include a "return to play" protocol. Our sports medicine committee has worked for several years with the N.H. Brain Injury Association, various physicians from around the state and beyond (Dr. Cantu, a famous researcher in the field, was our Annual Meeting speaker 3 years ago), and our parent association, the National Federation of High School State Associations (NFHS). Of course, we only oversee what happens at the 91 member high schools that belong to the NHIAA and do not write rules for non member private schools or below grade nine schools.

It appears that the medical field has finally agreed on the seriousness of concussions both long and short term which is certainly a good starting point. Educating others, to include student athletes, medical practitioners, parents, coaches, and others involved in youth and school based athletics is the real challenge. We at the NHIAA look forward to working with the New Hampshire Legislature in continuing to improve the awareness, prevention, and proper treatment of such brain injuries.

R. Patrick Corbin

R. Patrick Corbin, Executive Director
New Hampshire Interscholastic Athletic Assn.
251 Clinton Street
Concord, NH 03301
603-228-8671 - 603-225-7978(fax)

BY-LAW ARTICLE III
Sports Medicine

Sect. 1: Medical Coverage at Athletic Events
The importance of the long-range safety of high school athletes cannot be overstated. Consequently, the NHIAA and its member schools will favor medical safety over any other countervailing concerns including competitive advantage. Every high school in New Hampshire must make provisions for **licensed** medical personnel at all practices and contests. The types of provisions that are acceptable are (the provisions are in alphabetical order, not preferential order):

1. Athletic Trainer
2. Board Certified Sports Physical Therapist
3. Emergency Medical Technician
4. Nurse
5. Nurse Practitioner
6. Physician
7. Physician Assistant
8. Systems developed to call medical personnel to the site of the athletic event

At the athletic competitions where medical coverage is either provided or mandated by the NHIAA, injuries sustained by athletes will be evaluated by the designated medical personnel. The clearance to re-enter competition after an injury will be made by the designated medical personnel only. Absent unanimous agreement between the designated medical personnel to allow continued participation, an injured player will not be allowed to return to the game. Their decision is final and cannot be overturned by the coach, coaching staff, parents/guardians, or any non-designated personnel.

When the NHIAA provides qualified medical personnel and member schools also provide qualified medical personnel, it is expressly understood that the NHIAA provider shall defer to the school designated qualified medical personnel if requested. If the member school does not provide qualified medical personnel or if no deferral is requested, the NHIAA provider will act as the designated medical personnel. In choosing who should act as the designated medical personnel, all medical personnel are expected to act in the best interests of the student athletes and participate to the extent that his or her expertise will increase the quality of the care delivered. Prior to the start of the event the NHIAA assigned medical personnel, in conjunction with the designated site manager, should review this requirement and determine the procedures/chain of command to be identified during the event to ensure compliance with the provisions stated in this By-Law.
Note: Student trainers, high school or college, cannot be used to meet the provisions of this By-Law.

Sect. 2: Medical Statement
A. Students shall be ineligible to participate in interscholastic athletics (practices or games) unless there is on file in the school a *medical statement* provided by a physician (within the meaning of NH RSA 329) certifying the student athlete has passed a pre-participation physical examination prior to the beginning of the student athlete's high school athletic career. In every subsequent year, athletes shall have an updated medical history and a physical examination pertinent to their needs, if deemed necessary. Any student athlete significantly ill or injured since the last review shall be re-examined by a physician in order to be eligible to participate in interscholastic athletics.
B. A medical statement must be completed by a physician, ARNP or by a qualified non-physician health practitioner under the direct supervision of a physician (within the meaning of NH RSA 329).
C. A family may apply to the NHIAA Executive Director through the school administration for a waiver of this By-Law based on religious reasons. Prior to approving such requests, the parent and/or legal

NEW HAMPSHIRE INTERSCHOLASTIC ATHLETIC ASSOCIATION

2010 NHIAA Adopts the NFHS Guidelines For Management Of Concussions In Sports

At the February 2010 Meeting of the NHIAA Sport Medicine Committee and subsequently confirmed by the NHIAA Council also in February of 2010 the guidelines regarding concussion management as published by the National Federation of State High School Associations in 2009, were adopted as **minimum mandatory standards** to be utilized by all NHIAA member schools. Schools may adopt more restrictive guidelines or protocols but under no circumstances can the NHIAA guidelines be diluted especially where specific actions are mandated. Specifically, schools must minimally follow items 1 and 2 under "Sideline Decision Making" found in the "Management of Concussions and Return to Play" section of this document. All individuals involved in interscholastic athletics are encouraged to carefully study and make themselves aware of these guidelines.

The NHIAA website also has more in depth information on this topic (NH Advisory Council on Sport-Related Concussion issues a "Consensus Statement"). Bottom line, new research has made the medical community much more aware of the significant dangers related to sports related head injuries. The days of getting a "ding" or "Having your bell rung" and then returning to play are long gone.

SUGGESTED GUIDELINES FOR MANAGEMENT OF CONCUSSION IN SPORTS

National Federation of State High School Associations
PO Box 690, Indianapolis, IN 46206
February 2010

INTRODUCTION

Concussions are a common problem in sports and have the potential for serious complications if not managed correctly. Even what appears to be a "minor ding or bell ringer" has the real risk of catastrophic results when an athlete is returned to action too soon. The medical literature and lay press are reporting instances of death from "second impact syndrome" when a second concussion occurs before the brain has recovered from the first one regardless of how mild both injuries may seem.

At many athletic contests across the country, trained and knowledgeable individuals are not available to make the decision to return concussed athletes to play. Frequently, there is undo pressure from various sources (parents, player and coach) to return a valuable athlete to action. In addition, often there is unwillingness by the athlete to report headaches and other findings because the individual knows it would prevent his or her return to play.

Outlined below are some guidelines that may be helpful for parents, coaches and others dealing with possible concussions. Please bear in mind that these are general guidelines and must not be used in place of the central role that physicians and athletic trainers must play in protecting the health and safety of student-athletes.

SIDELINE MANAGEMENT OF CONCUSSION

1. **Did a concussion take place?** Based on mechanism of injury, observation, history and unusual behavior and reactions of the athlete, even without loss of consciousness, assume a concussion has occurred if the head was hit and even the mildest of symptoms occur. (See next page for signs and symptoms)

2. **Does the athlete need immediate referral for emergency care?** If confusion, unusual behavior or responsiveness, deteriorating condition, loss of consciousness, or concern about neck and spine injury exist, the athlete should be referred at once for emergency care.

3. **If no emergency is apparent, how should the athlete be monitored?** Every 5- 10 minutes, mental status, attention, balance, behavior, speech and memory should be examined until stable over a few hours. If appropriate medical care is not available, an athlete even with mild symptoms should be sent for medical evaluation.

4. **No athlete suspected of having a concussion should return to the same practice or contest, even if symptoms clear in 15 minutes.**

MANAGEMENT OF CONCUSSIONS AND RETURN TO PLAY
(See "Sideline Decision-Making")

Increasing evidence is suggesting that initial signs and symptoms, including loss of consciousness and amnesia, may not be very predictive of the true severity of the injury and the prognosis or outcome. More importance is being assigned to the duration of such symptoms and this, along with data showing symptoms may worsen some time after the head injury, has shifted focus to continued monitoring of the athlete. This is one reason why these guidelines no longer include an option to return an athlete to play even if clear in 15 minutes and why there is no discussion about the "Grade" of the concussion.

Any athlete who is removed from play because of a concussion should have medical clearance from an appropriate health care professional before being allowed to return to play or practice. The Second International Conference on Concussion held in Prague recommends an athlete should not return to practice or competition in sport until he or she is asymptomatic including after exercise.

Recent information suggests that mental exertion, as well as physical exertion, should be avoided until concussion symptoms have cleared. Premature mental or physical exertion may lead to more severe and more prolonged post concussion period. Therefore, the athlete should not study, play video games, do computer work or phone texting until his or her symptoms are resolving. Once symptoms are clear, the student-athlete should try reading for short periods of time. When 1-2 hours of studying can be done without symptoms developing, the athlete may return to school for short periods gradually increasing until a full day of school is tolerated without return of symptoms.

Once the athlete is able to complete a full day of school work, without PE or other exertion, the athlete can begin the gradual return to play protocol as outlined below. Each step increases the intensity and duration of the physical exertion until all skills required by the specific sport can be accomplished without symptoms. These recommendations have been based on the awareness of the increased vulnerability of the brain to concussions occurring close together and of the cumulative effects of multiple concussions on long-term brain function. Research is now revealing some fairly objective and relatively easy-to-use tests which appear to identify subtle residual deficits that may not be obvious from the traditional evaluation. These identifiable abnormalities frequently persist after the obvious signs of concussion are gone and appear to have relevance to whether an athlete can return to play in relative safety. The significance of these deficits is still under study and the evaluation instruments represent a work in progress. They may be helpful to the professional determining return to play in conjunction with consideration of the severity and nature of the injury; the interval since the last head injury; the duration of symptoms before clearing; and the level of play.

SIDELINE DECISION-MAKING
1. No athlete should return to play (RTP) on the same day of concussion.
2. Any athlete removed from play because of a concussion must have medical clearance from an appropriate health care professional before he or she can resume practice or competition.
3. Close observation of athlete should continue for a few hours.
4. After medical clearance, RTP should follow a step-wise protocol with provisions for delayed RTP based on return of any signs or symptoms.

MEDICAL CLEARANCE RTP PROTOCOL
1. No exertional activity until asymptomatic.
2. When the athlete appears clear, begin low-impact activity such as walking, stationary bike, etc.
3. Initiate aerobic activity fundamental to specific sport such as skating or running, and may also begin progressive strength training activities.
4. Begin non-contact skill drills specific to sport such as dribbling, fielding, batting, etc.
5. Full contact in practice setting.
6. If athlete remains asymptomatic, he or she may return to game/play.

A. ATHLETE MUST REMAIN ASYMPTOMATIC TO PROGRESS TO THE NEXT LEVEL.
B. IF SYMPTOMS RECUR, ATHLETE MUST RETURN TO PREVIOUS LEVEL.
C. MEDICAL CHECK SHOULD OCCUR BEFORE CONTACT.

SIGNS AND SYMPTOMS OF CONCUSSION

Concussions can appear in many different ways. Listed below are some of the signs and symptoms frequently associated with concussions. Most signs, symptoms and abnormalities after a concussion fall into the four categories listed below. A coach, parent or other person who knows the athlete well can often detect these problems by observing the athlete and/or by asking a few relevant questions of the athlete, official or a teammate who was on the field or court at the time of the concussion. Below are some suggested observations and questions a non-medical individual can use to help determine whether an athlete has suffered a concussion and how urgently he or she should be sent for appropriate medical care.

1. **PROBLEMS IN BRAIN FUNCTION:**
   a. Confused state – dazed look, vacant stare or confusion about what happened or is happening.
   b. Memory problems – can't remember assignment on play, opponent, score of game, or period of the game; can't remember how or with whom he or she traveled to the game, what he or she was wearing, what was eaten for breakfast, etc.
   c. Symptoms reported by athlete – Headache, nausea or vomiting; blurred or double vision; oversensitivity to sound, light or touch; ringing in ears; feeling foggy or groggy; dizziness.
   d. Lack of sustained attention – difficulty sustaining focus adequately to complete a task, a coherent thought or a conversation.

2. **SPEED OF BRAIN FUNCTION:** Slow response to questions, slow slurred speech, incoherent speech, slow body movements and slow reaction time.

3. **UNUSUAL BEHAVIORS:** Behaving in a combative, aggressive or very silly manner; atypical behavior for the individual; repeatedly asking the same question over and over; restless and irritable behavior with constant motion and attempts to return to play; reactions that seem out of proportion and inappropriate; and having trouble resting or "finding a comfortable position."

4. **PROBLEMS WITH BALANCE AND COORDINATION:** Dizziness, slow clumsy movements, inability to walk a straight line or balance on one foot with eyes closed.

IF NO MEDICAL PERSONNEL ARE ON HAND AND AN INJURED ATHLETE HAS ANY OF THE ABOVE SYMPTOMS, HE OR SHE SHOULD BE SENT FOR APPROPRIATE MEDICAL CARE.

CHECKING FOR CONCUSSION

The presence of any of the signs or symptoms that are listed in this brochure suggest a concussion has most likely occurred. In addition to observation and direct questioning for symptoms, medical professionals have a number of other instruments to evaluate attention, processing speed, memory, balance, reaction time, and ability to think and analyze information (called executive brain function). These are the brain functions that are most likely to be adversely affected by a concussion and most likely to persist during the post concussion period.

If an athlete seems "clear" he or she should be exercised enough to increase the heart rate and then evaluate if any symptoms return before allowing that athlete to practice or play.

Computerized tests that can evaluate brain function are now being used by some medical professionals at all levels of sports from youth to professional and elite teams. They provide an additional tool to assist physicians in determining when a concussed athlete appears to have healed enough to return to school and play. This is especially helpful when dealing with those athletes denying symptoms in order to play sooner.

For non-medical personnel, the Centers for Disease Control and Prevention (CDC) has also developed a tool kit ("Heads Up: Concussion in High School Sports"), which has been made available to all high schools, and has information for coaches, athletes and parents. The NFHS is proud to be a co-sponsor of this initiative.

PREVENTION

Although all concussions cannot be prevented, many can be minimized or avoided. Proper coaching techniques, good officiating of the existing rules, and use of properly fitted equipment can minimize the risk of head injury. Although the NFHS advocates the use of mouthguards in nearly all sports and mandates them in some, there is no convincing scientific data that their use will prevent concussions.

Prepared by NFHS Sports Medicine Advisory Committee. 2009

References:
NFHS. Concussions. 2008 NFHS Sports Medicine Handbook (Third Edition). 2008: 77-82.
NFHS. http://www.nfhs.org.

GRANITE PHYSIATRY, PLLC

Physical Medicine • Rehabilitation • Occupational Health • Sports Medicine

Stuart J. Glassman, MD FAAPMR, MROCC, CIME

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Phone: 603-223-8145 • Fax: 603-223-8146

E-mail: sjg@granitephysiatry.com

www.granitephysiatry.com

Your appt has been scheduled for:

Date: _____ Time: _____

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- ☐ Lincoln
- ☐ Lebanon

CONCORD HOSPITAL

Rehabilitation Services

- Continuing a tradition of quality and caring in rehabilitation

CONCUSSION ASSESSMENT AND MANAGEMENT PROGRAM (CAMP)

COVER PHOTO: SHUTTERSTOCK Model is used for illustrative purposes only.

What is a Concussion?

A concussion is a brain injury, caused by a bump or blow to the head or body, which makes the brain move back and forth quickly inside the skull. It can occur with or without loss of consciousness.

Signs and symptoms of a concussion may not appear until hours or days after the injury and may include nausea, headaches, sensitivity to light or noise and difficulty concentrating. Symptoms can last from several minutes to days, weeks, months or even longer.

Many concussions or brain injuries go undetected especially in athletes, as they may withhold reporting symptoms. Additionally, concussions are often not taken seriously because there are no visible signs of injury. Appropriate diagnosis and patient and family/caregiver education are critical for helping individuals with concussion achieve optimal recovery.

Athletes or individuals who have a concussion should not return to play or other activity until they are symptom free and have received approval from a doctor or healthcare professional. This is especially important because once someone has had one concussion the risk of suffering a second concussion is six times greater. A repeat concussion that occurs before the brain recovers from the prior concussion can slow recovery or increase the likelihood of having long-term issues.

ImPACT® (Immediate Post Concussion Assessment and Cognitive Testing) is one of the tools utilized to assist in determining when an individual is ready to return to sports or activities. ImPACT® is a computerized test of memory, reaction time, processing speed and concentration. Testing is designed to capture a baseline level of brain function before the start of a sport season and then administered after a concussion has been sustained. Comparison results help in the determination of readiness to return to sports and aide in minimizing the compounding effects of a second concussion.

How Can Our Program Help You?

Our comprehensive CAMP professionals address all aspects of concussion-related issues from prevention and education to post concussion treatment.

The program includes a multidisciplinary team of physicians, physical therapists and occupational therapists focused on improving concussion care throughout the community.

Program components:

Community Education
We offer community education programs and educational information to increase awareness about prevention and recognition of concussion to schools, parents and other community members.

ImPACT®
We offer baseline screenings utilizing ImPACT® as part of the community program offerings. Pre-screening is designed to capture a baseline level of brain function before an individual sustains an injury.

Post Concussion Services
Rehabilitation Services physical and occupational therapists offer post concussion assessment and treatment that provides objective data to assist in the management of patients with concussion. The assessment includes an evaluation of balance, vestibular function, associated musculoskeletal injuries (neck, face, shoulder, spine) and neuro cognitive function.

We work with physicians from Granite Physiatry, who are credentialed ImPACT® consultants for the post-concussion test interpretation.

After the assessment is completed, the athlete or individual will participate in a post-concussion rehabilitation program based on evidence-based protocols. Treatment will consist of both progressive physical exercise programs and cognitive exercises as appropriate.

For athletes, this may include a period of rest followed by light aerobic activity, sport-specific activity, non-contact training drills and sport performance training. This activity progression allows the athlete or individual to gradually increase activity tolerance and assist in the safe return to sports or other activities while minimizing the risk of sustaining a subsequent concussion.

Our Locations

Concord Hospital Rehabilitation Services is committed to providing you with a personal approach and the latest evidence-based care at the following convenient locations.

Center for Sports Medicine and Orthopaedic Rehabilitation
264 Pleasant St., Concord • (603)228-4610
Physical Therapy, Occupational Therapy, Aquatics

CH Medical Offices North
18 Foundry St., Ste. 101, Concord • (603)224-5554
Physical Therapy, Occupational Therapy

CH Medical Offices at Horseshoe Pond
One Corporate Center
60 Commercial St., Ste. 403, Concord • (603)230-1250
Physical Therapy, Industrial Rehabilitation

CH Medical Offices East
1990 Dover Rd, Ste. 202, Epsom • (603)736-6222
Physical Therapy, Occupational Therapy

Pembroke
121 Pembroke St., Pembroke • (603)268-8036
Physical Therapy

Warner
2 East Main St., Warner • (603)456-2939
Physical Therapy

Concord Hospital Rehabilitation Services
250 Pleasant St., Concord • (603)227-7111
Cardiac Rehab, Pulmonary Rehab, Speech Therapy

Concussion Assessment and Management Program (CAMP)

Concord Hospital Rehabilitation Services Concussion Assessment and Management Program (CAMP) is designed to meet the needs of individuals who have suffered a concussion.

Our goals are centered on concussion prevention and community education as well as treatment for those who have sustained a concussion. Treatment is evidence-based and is focused on assisting each athlete or individual to return to their sport or activity safely.

The Facts on Concussions

- Concussions are one of the most commonly reported injuries among the more than 38 million boys and girls that participate in organized youth sports in the U.S. today.
- Each year, over 300,000 mild to moderate sport and activity-related concussions occur in children under the age of 18.
- Concussions can occur in any organized or unorganized sport or recreational activity; however, the risk is greatest in athletic environments where collisions are common.
- Concussions can occur as a result of non-sport related injuries.
- While many of these concussions may be considered mild, they can result in health consequences such as impaired thinking, memory problems and emotional or behavioral changes.
- Once someone has sustained a concussion, the risk of suffering a second one is increased, especially if they return to sports or activity too soon.

Information provided by: U.S. Department of Health and Human Services Center for Disease Control and Prevention

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CONCUSSION IN SPORTS - WHAT YOU NEED TO KNOW

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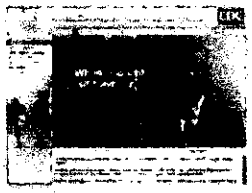

Concussion in Sports - What You Need To Know

Sports-related concussion in high school sports can be serious or even life-threatening situations if not managed correctly. National Federation of State High School Associations (NFHS) and Centers for Disease Control and Prevention (CDC) have teamed up to provide information and resources to help educate coaches, officials, parents and students on the importance of proper concussion recognition and management in high school sports. Mick Koester M.D., ATC, Chair of the NFHS Sports Medicine Advisory Committee and Director of the Slocum Sports Concussion in Eugene, Oregon takes you through this course. In this course you will understand the impact sports-related concussion can have on your players, how to recognize a suspected concussion, the proper protocols to manage a suspected concussion, and steps to help your player return to play safely after experiencing a concussion.

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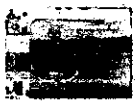

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Supporting the Student-Athlete's Return to the Classroom After a Sport-Related Concussion

Neal McGrath, PhD

Sports Concussion New England, Brookline, MA

Objective: This article provides a framework for school athletic trainers to use in advising colleagues about the health and academic needs of student-athletes presenting with concussions.

Background: Management of sport-related concussions has been an area of growing concern for school athletic programs. Recent work in this area has highlighted significant risks for student-athletes presenting with these mild traumatic brain injuries.

Description: Topics covered include general teaching points for the athletic trainer to use with school colleagues. An integrated model for school management of sport concussion injuries is presented that includes involvement of the student's athletic trainer, school nurse, guidance counselor, teachers, social worker, psychologist, physicians, and parents.

Clinical Advantages: Academic accommodations for specific postconcussion symptoms are proposed that may help the student-athlete strike an optimum balance between rest and continued academic progress during recovery.

Key Words: athletic injuries, mild traumatic brain injuries, academic accommodations, school concussion programs

Athletic trainers (ATs) have devoted increasing attention to the management of sport concussions among student-athletes in recent years as researchers have provided better understanding of the risks of these injuries,[1–3] as new assessment tools have been developed,[4–7] and as consensus has begun to emerge among sports medicine professionals regarding best clinical practices.[8–12] Working in school settings under the supervision of their team physicians, ATs usually have the primary responsibility for day-to-day management of student-athletes recovering from these mild traumatic brain injuries. Although the AT's immediate concern is the student-athlete's safety and readiness to resume exercise and contact sport participation after a sport-related concussion, it is also very important to recognize that athletes recovering from concussions face certain predictable challenges in their academic lives in the days and weeks after these injuries. Even when the AT and team physician carefully manage a student-athlete's concussion, school personnel outside of the athletic department may not be aware of the recovering student's needs or of the important role that guidance counselors, school nurses, social workers, psychologists, and teachers—working together with parents and the student-athlete's personal physician—can play in this process to help minimize the academic consequences of the injury.

This article provides an overview of key information for the AT to use in advising school colleagues about concussion recovery. Included are a 5-step model for concussion management within school settings, a review of reasonable academic accommodations for student-athletes in recovery, and suggestions for the implementation of accommodation plans, with an emphasis on the key role played by the AT as a member of the larger educational team.

ADVISING SCHOOL COLLEAGUES ABOUT CONCUSSION RECOVERY

The AT is ideally positioned to be a primary source of information about concussion recovery, not only for the student-athlete but also for one's school colleagues. Several key teaching points may be useful to help other staff who will be interacting with the recovering student-athlete.

Concussion Incidence

Although sport concussions account for fewer than 10% of total injuries attended to by ATs,[13] coaches should expect seasonal rates of up to 5% to 10% among athletes participating in contact sports. Coaches whose teams have either no reported concussions or much lower concussion rates should be mindful that concussions may be escaping detection as a result of a lack of awareness of symptoms and risks or the tendency of many student-athletes to underreport these injuries.[14]

Loss of Consciousness and Amnesia

Most coaches know that athletes whose concussions involve loss of consciousness should receive immediate medical evaluation.[9] However, sport concussions do not usually involve a full loss of consciousness.[14–16] Furthermore, a clear relationship between loss of consciousness and postconcussion symptom severity or duration does not seem to exist; athletes who have not lost consciousness but display amnesia for events just before or after the injury are slower to recover than those who lost consciousness but did not have amnesia.[17]

Symptoms

In the days or weeks after injury, student-athletes typically present with some combination of physical, cognitive, sleep dysregulation, and emotional symptoms.[18]

Return to Play

Expert consensus[12] is that an athlete diagnosed with a concussion should not be allowed to return to play on the

sex. On occasion, this may point to the possibility of a preexisting, undiagnosed learning disability or attention deficit disorder. For these students, further testing by the school in the form of a core evaluation or a more in-depth neuropsychological assessment may be indicated to rule out these conditions. Student-athletes with a history of multiple concussions may show lingering cognitive deficits on postconcussion testing and persisting performance deficits in their schoolwork that are consistent with long-term cognitive disabilities. More comprehensive educational and neuropsychological evaluation may, therefore, be indicated if recovery has not occurred by approximately 3 months postinjury. Fortunately, such instances are uncommon, and the patient may still continue to slowly improve over time, but more comprehensive testing can be useful to better understand the student-athlete's full range of cognitive strengths and weaknesses. Such testing can then become the basis for more detailed academic planning and accommodations.

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THE DAMAGE DONE

WHILE CONCUSSIVE HITS DOMINATE THE DEBATE, A GROUNDBREAKING NEW STUDY SUGGESTS THAT MINOR BLOWS—AND THERE CAN BE HUNDREDS EACH GAME—ARE JUST AS TRAMAUTIC

By David Epstein

Photograph by ANDREW HANCOCK

YOU WOULDN'T GUESS that Jefferson High football players Joel Ripke and Brandon Stumph are part of a scientific breakthrough. Purdue researchers who put sensors in the helmets of the seniors from Lafayette, Ind., certainly didn't. Ripke, a mountainous 17-year-old at 6' 6" and 260 pounds, is the Bronchos' starting right tackle. His buddy Stumph, a starter at defensive end, is a more mundane 6' 1" and 190 pounds, but with a thirst for contact. His black helmet looks like one of those chipped and gouged bowling balls that hasn't beaten a straight path in years.

Despite their easy camaraderie and Penn-and-Teller size difference, Ripke and Stumph line up across from each other in practice and get after it, with Stumph breaking out every duck, dodge, chop or bull rush he knows to get past Ripke's forklift arms and Frisbee-sized mitts. "If I'm not bigger than the dude, I like to hit him with my helmet," Stumph says, "and then use a move so I can get his hands off me." Nor does Ripke shy away from putting hat on hat. He's been taught that effective run blocking requires three points of contact on the defender: hand, hand, helmet.

Despite their frequent bell-ringings and clock-cleanings, neither Ripke nor Stumph has suffered a concussion in practice or in a game. That would be unequivocally gratifying news, except that the Purdue researchers' data, to be published in the *Journal of Neurotrauma*, tell a far more troubling story. The findings suggest that while the NFL is going to unprecedented lengths to control the violent collisions that produce concussions, brain trauma in football may start much earlier, and much less conspicuously, with hits that never raise an eyebrow, much less a penalty flag.

Before the 2009 football season the group of Purdue engineering professors, athletic trainers and graduate students fitted 23 of the Bronchos' helmets with accelerometers and gave players both the ImPACT test—a computerized neurocognitive exam that tests memory and concentration—and tests of working memory while their brains were monitored with magnetic resonance imaging (MRI). The idea was to establish a baseline for each player against which he could be reexamined after a concussion. Says Thomas Talavage, a Purdue associate professor of biomedical engineering and electrical and computer engineering, "We were looking to understand what kinds of hits cause a concussion and what the consequences are."

Using NFL-sponsored studies as a guide, the researchers figured that hits in excess of 80 times the force of gravity (heading a soccer ball produces around 20 Gs) would cause concussions. So the Purdue researchers were stunned when, on the first day of full-contact practice, they started seeing hits of 100 Gs or more. "I thought, Oh, my god, we're going to be carrying these kids off the field," says Eric Nauman, associate professor of mechanical and biomedical engineering.

It turned out, however, that no particular magnitude of hit correlated with a concussion. One player holding the line on an extra-point attempt took 289 Gs to the helmet from a converging pair of would-be kick blockers. "You could hear the hit in the subdivision next door," says Evan Breedlove, a biomedical engineering grad student and member of the study team. But the lineman was fine. In fact, three weeks into the season the Purdue team had just one concussion for its study. (There were concussions among Bronchos players who were not part of the test.) So the researchers had players from the study who had never suffered concussions retake the ImPACT test and get their brains scanned with functional MRIs (fMRI), which image

cerebral blood flow to pinpoint active areas in the brain. The players were meant to serve as a control group for later comparison to concussed teammates. But the first lineman who came in as an ostensible control subject surprised the researchers when, compared with the preseason, he scored 20% lower on the visual memory section of the ImPACT test, which requires rapid identification of recurring patterns. The player had no trouble with the verbal section, though, and Talavage began to think there might be something wrong with the test itself, which is used by the NFL and many college and high school teams to gauge whether a player has recovered from a concussion.

A few concussions did arise as the season went on, but the researchers continued to bring in nonconcussed players for ImPACT tests and fMRIs. And then they saw it again: Another kid who had never suffered a concussion flubbed the visual memory section of the ImPACT test. Of 11 players who took midseason testing, three had suffered concussions during the season and eight had never had concussions. Of those eight, four nevertheless showed significant declines in visual memory. In fact, the players with the most impaired visual memory skills were not coming from the concussed group but from a group that in the week preceding the test had taken a large numbers of hits—around 150—mostly in the 40 to 80 G range.

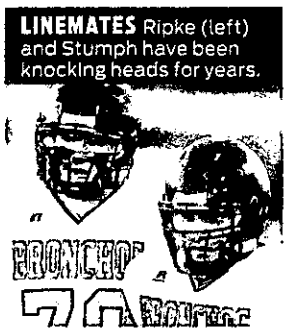
If the test scores were accurate, the researchers had inadvertently documented, in real time, a new classification of high school athlete: a player who was never concussed, was not verbally impaired and was asymptomatic even as far as his parents could tell, but whose visual memory was more impaired than his amnesic, headachy, light-sensitive, concussed teammates.

Says Talavage, "We started having weekly meetings to debate whether we were seeing something real."

AND THEN THEY looked at the fMRIs. Those brain snapshots had been done while players took two versions of a working memory test. In the first version a subject must click a button each time a flashing letter repeats in sequence. D, A, B, B—*click*. The second version requires more brainpower: React when the letter that flashed two characters ago repeats. A, J, F, J—*click*.

All of the players were able to complete the test with relative accuracy, but the brain activity of the four players who took a lot of middling hits—but suffered no concussions—changed dramatically. When each one took the harder version of the test, there was an unmistakable decline in activity in an area of the brain just behind the forehead called the dorsolateral prefrontal cortex, which is critical to visual memory. "It's like a horse race," says Talavage. "When the brain starts a task, it starts all the horses running, and one wins, or gets the task done. But when the brain is already taxed, it prevents some of those horses from starting. There are fewer resources available."

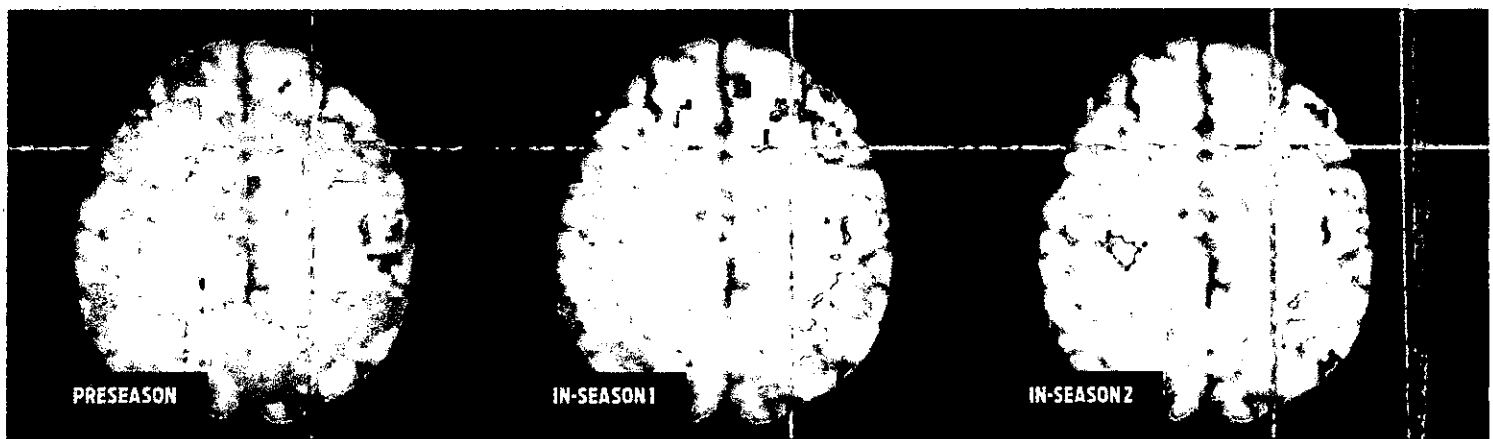
Talavage has seen an interesting parallel in an unrelated study that compares gifted children with reading-impaired and average children. The gifted kids show relatively low brain activity on a reading test, presumably because they aren't challenged and need not summon all their mental horsepower. The average children start all the horses. But the reading-impaired subjects, like the gifted children, keep some of the starting gates closed—not because the task is too easy but because it is too difficult. A single week of 150 hits turned the four "functionally impaired" Jefferson High players, as the Purdue team calls them, into equivalents of the reading-impaired children, except that the damage was to visual memory.



LINEMATES Ripke (left) and Stumph have been knocking heads for years.

Yet every method of sideline diagnosis for concussions relies on self-reported symptoms like headaches or dizziness, in addition to tests of verbal—not visual—memory. The NFL, for example, now mandates that a concussed player is done for the day if, after a hit, he can't carry on a coherent conversation or remember the last play or his gap assignment. The four functionally impaired Bronchos, however, showed absolutely nothing that would be categorized as a symptom. "You wouldn't even know to examine them," says Larry Leverenz, an athletic trainer and Purdue clinical professor of health and kinesiology who is on the study team. "There's nothing until you give them an fMRI or test the visual memory."

Even in the gladiator culture of football, the growing awareness of brain injury has transformed the act of hiding a concus-



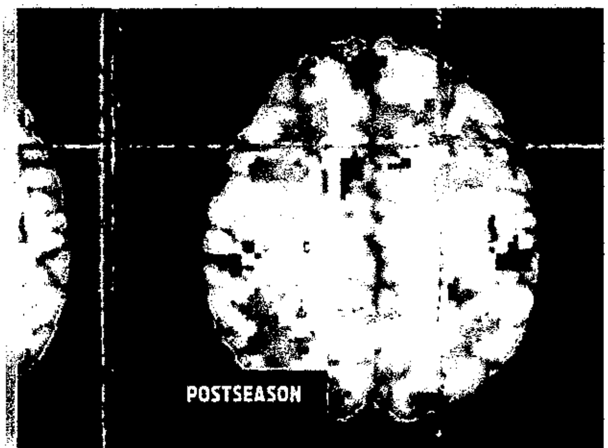
TELLTALE A sequence of fMRIs from a "functionally impaired" player showed that brain activity (orange) declined noticeably, especially in the front lobe, th

BRAIN IMAGERY COURTESY OF THE PURDUE ACUTE NEURAL INJURY CONSORTIUM
ANDREW HANCOCK (RIPKE AND STUMPH)

sion from one signifying bravery to one of stupidity. The functionally impaired four didn't hide symptoms; they never knew they had any.

BEYOND THE FACT that the best predictor of impaired visual memory was not concussions but the number of hits absorbed in the previous week, one other bit of data jumped out at the Purdue researchers. While the players who were diagnosed with concussions tended to take heavy hits on the side of the helmet, the functionally impaired four tended to get hit on the front, essentially in the upper forehead, which houses the dorsolateral prefrontal cortex—where linemen get hit, play in and play out. It wasn't the rare, excessively violent collision between the wide receiver and the free safety, the Patriot missile intercepting the Scud, that mattered most, but rather the milder, more frequent kind of hits that replicated two adolescent rams knocking heads.

Consider this: Concussions as we know them involve a hit that rattles a part of the brain involved in language processing or motor skills. Hits to the forehead that might be every bit as damaging hide their nefarious effects in the frontal lobe, a part of the brain primarily involved in visual memory, planning and cognition, rather than motor or sensory function, and thus not taxed by sideline concussion exams. Indeed, it's possible that all along, while brain trauma questions have focused on concussions, the real damage is being inflicted by minor impacts that chip away at the brain. A 2009 study by researchers including Ann McKee, the Boston University neurologist who



the front l lobe, then rebounded after the hitting stopped.

BRAIN IMAGERY COURTESY OF THE PURDUE ACUTE NEURAL INJURY CONSORTIUM

ANDREW HANCOCK (SPIKE AND STUMPS)

BRAIN TEASERS

CONCUSSION DIAGNOSIS IS AN INEXACT SCIENCE, BUT NEW TESTS AND TECHNOLOGIES MAY CHANGE THAT *By David Epstein*

EVEN AS doctors have learned more about brain trauma, the definition of a concussion remains frustratingly vague. The injury is diagnosed through a mishmash of symptoms, some of which may or not be present in any particular case. Bone breaks have X-rays and muscle tears have MRIs, but no form of medical imaging has yet been able to quickly and reliably confirm a concussion diagnosis. But a number of promising tests are in the medical pipeline.

ONE PROMISING TEST IDENTIFIES SUBSTANCES THAT SPILL INTO THE BLOOD FROM DAMAGED BRAIN TISSUE

Last month the U.S. Army, in partnership with the Alachua, Fla.-based company Banyan Biomarkers, announced a potential breakthrough in the development of a blood test for brain trauma. The test—which accurately diagnosed traumatic brain injury among 34 patients in a study conducted by Banyan and the Army—identifies substances that spill into the blood from injured brain tissue. For example, the proteins SBDP145 and SBDP120 appear to enter the blood as a result of damage to brain cells. "It's going to change medicine entirely," says Col. Dallas Hack, an Army doctor and the director of the Combat Casualty Care Research Program. The next step is a study of 1,200 patients that will take several years to complete.

Randall Benson, a neurologist at Wayne State in Detroit who has studied former NFL players, is hopeful but cautioned that the biomarker test results are preliminary. "The data look very compelling for moderate to severe injuries, but for mild injuries they have very little data," he says. Benson himself has been working on technology that may lead to effective and immediate diagnosis of mild brain injuries using a special type of MRI called diffusion tensor imaging, which creates images of water flow in the brain and could pick up anatomical irregularities.

In addition to diagnostic tests, advances in genetics suggest a way to predict how well a person will—or won't—recover from a concussion. A burgeoning field of research suggests that people who carry one or two copies of a version of a gene known as ApoE may be at increased risk of suffering brain-trauma-induced dementia. The ApoE4 variant (one of three common variations that a person can carry) is known to increase an individual's risk of developing Alzheimer's. However, the gene increasingly appears to have a role in slowing or preventing recovery from all manner of brain injury. For example, car accident victims who have the ApoE4 variant are more likely to die or suffer long-term brain damage. And studies of boxers and football players suggest that ApoE4 carriers take longer to recover from head trauma and are more likely to suffer serious dementia later in life.

In 2002, Barry Jordan, then chief medical officer of the New York State Athletic Commission, considered screening all boxers for the ApoE4 variant before deciding that more study was needed. As with biomarker research, genetic screens are a potentially promising tool in the fight against athletic brain trauma—but the science is in its infancy. ▫

WATCHFUL EYE Every hit loomed large for LaSala, who wore a hat honoring LeGrand.

CARRYING ON

A FORMER PLAYER'S PARALYSIS FROM A HEAD-ON HIT CAUSED A COACH TO CONSIDER GIVING UP THE GAME *By L. Jon Wertheim*

WHEN COLONIA (N.J.) HIGH coach Ben LaSala—an old-school, ass-kicker-but-teddy-bear type—received the news that Rutgers junior defensive tackle Eric LeGrand had been paralyzed from the neck down in an Oct. 16 game against Army, he froze. LaSala will tell you that LeGrand, who graduated from Colonia High in 2008, wasn't simply the best player he's ever coached; he might have been the best kid. LeGrand had been trying to make a tackle and led with his helmet. He collided with a Black Knight's shoulder and fell to the ground, unable to move anything other than his head. "You're 51 years old, you've coached 29 years, you have sons and daughters, you figure there's not a lot you haven't seen," LaSala, whose son Joseph is LeGrand's best friend, said last Friday. "Let me tell you, I had no idea how to react."

Football had been LaSala's life; now the game had betrayed him. Could he continue to coach? "I've thought about it a lot," he told the Newark *Star-Ledger* that weekend. "I don't even know how I'm going to deal with this." LaSala gave his players the option of taking a break from football. None did. Their coach had a harder time moving on. "I'm crying 20 times a day and I'm not a crier," said LaSala, after nearly losing it again during the tackling drills. "I heard every sound, watched every kid. It was all so magnified. All because of Eric."

In the end LeGrand was the reason LaSala stuck it out. "Football is also what put me into contact with people like Eric," he says, pausing to collect himself, his voice suddenly toneless. "I'm trying to see football's positives outweighing negatives. Does that make sense?"

At the Patriots' homecoming game last Saturday, LaSala and athletic director Ronn Weisenstein wanted to acknowledge LeGrand's injury without diverting too much attention from the kids on the field. "You don't want to ignore it," says Weisenstein. "You also don't want a freak injury, horrible as it was, to become [a referendum] on football."

Before the game, a P.A. announcement was made about LeGrand's injury. (As of Monday, he remained paralyzed.) Most of the 1,500 or so fans wore buttons and rubber bracelets in LeGrand's honor. Like 16,000 other players around the state, the Patriots wore decals of LeGrand's Rutgers number 52 jersey on their helmets. LeGrand's Colonia jersey hung behind the Patriots' sideline. In the stands, parents were palpably nervous. Some prayed. Some held hands. Some took long, hard looks at the 10-foot backboard—the type of plastic stretcher on which LeGrand was taken from the field—jutting out from the back of the fieldside ambulance.

The Patriots beat South Plainfield 28–18; more important, there were no serious injuries. "We were lucky to get that one," LaSala said while walking off the field, unshaven, a Rutgers 52 cap pulled low over his eyes. "This game, it wasn't easy."

He was right. It was uneasy. □

has autopsied the damaged brains of deceased former NFL players, noted that long-term brain deterioration did not strictly correspond to the history of concussions.

Randall Benson, a neurologist at Wayne State in Detroit who has studied former NFL players suffering from cognitive impairment and depression, says that some of them never suffered a concussion. Benson thinks the Purdue researchers may have taken a real-time snapshot of the early stages of the corrosive creep that wears away the frontal lobe, a part of the brain involved in navigating social situations. Too much erosion and victims reach a breaking point—like former Steelers offensive lineman Terry Long, who died in 2005 from drinking antifreeze. "It's an insidious progression," Benson says, "and it's not obvious when you talk to [players]." Benson has seen MRIs that show the brain drifting in the head with a movement as routine as a twisting of the neck. "It would defy the laws of physics if the brain didn't have a shearing injury when you stick your face into a 275-pound defensive lineman," he says.

But what if it doesn't take a 275-pound lineman? What if it takes only a 190-pound Brandon Stumph, the likes of whom many of the 1.1 million high school football players will encounter regularly on the field? Or what if it doesn't take even that? What if it just takes a one-pound soccer ball? In a 2003 study from the Florida Institute of Technology, subjects were briefly shown a design and directed to redraw it. Only one of 12 non-soccer-playing control subjects scored below the normal range, compared with seven of 21 soccer players who had a history of frequent headers. That cohort also scored worse on an IQ test than the control group, and lower than players who did not head the ball as frequently.

The mounting evidence suggests that some people—perhaps a lot—simply cannot play these games without being damaged, concussion or no concussion. "You can break something by hitting it hard once," says Katie Morigaki, a Purdue graduate assistant athletic trainer who worked on the study, "or you can break it by hitting it softer many times."

AND NOW THE GOOD NEWS. "There are issues we can address without changing football or racking up costs," says Nauman. If it's simply the number of hits that predict whether a player will suffer brain damage,

LOU CAPOZZOLA

ERICK W. RASCO

then, like pitch counts, that can be managed. Instead of full-contact practice on Tuesdays and Wednesdays, high schools could take a cue from the pros. "If a school can't afford all this stuff"—like fMRI, which they invariably can't—"if they hit one fewer day a week, they're probably in better shape," Nauman says. Even simpler would be a cultural shift from the headbutt back to the high-five. The Purdue team found the Jefferson players' celebratory helmet-knocks registered 80 to 100 Gs near the frontal lobe.

More good news: Though the Bronchos were not told their test results, several, like Ripke and Stumph, figured out that they were in the high-hits group by virtue of getting called in for more fMRIs than their teammates. The Purdue researchers say one Jefferson High player who was in the impaired group last season seems to have figured that out and has played with better, heads-up technique this season, reducing the number of hits he's taken on the forehead.

And the best news: After nine months off from football, the functionally impaired players who were back for the 2010 season (one had graduated) returned to their baseline ImPACT scores. So perhaps the youthful brain is able to completely heal itself, or at least make up for any deficit.

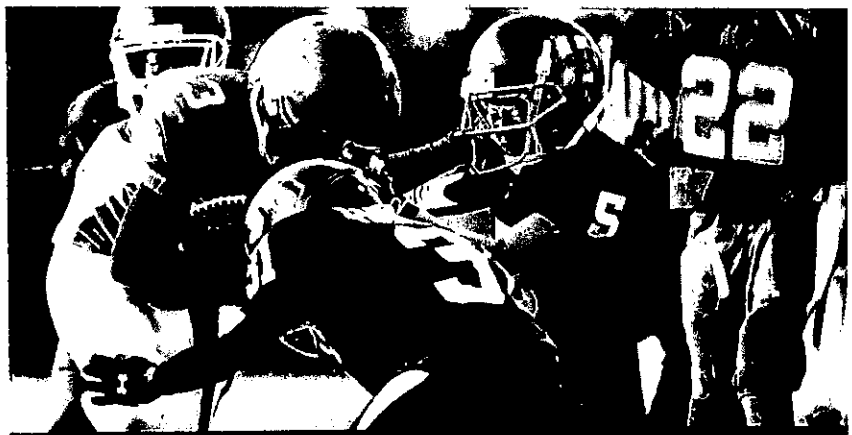
Critical chronological windows are known to exist for recovery from particular brain injuries. For example, in the rare case when a very young child has a stroke and loses the ability to speak, a different part of the brain is able to take over speech, and the child invariably recovers full language ability. But if the stroke occurs after the age of nine, the brain is not as flexible, and the recovery may be longer and less complete. If it occurs after puberty, some symptoms will be permanent.

The Purdue study is continuing this fall at Jefferson High, with 32 Bronchos players now taking part, and it shortly will expand by adding the reigning Indiana Class 3A state champion West Lafayette High. Researchers hope to track players through high school and even college—Ripke hopes to play at the next level—to see at what point deficits become irreversible. That is, if they are not already looking at it. "Are these kids really coming all the way back to baseline?" Leverenz asks. "Or are they just a little bit off one year, and just a little bit off the next year, and pretty soon it's significant?"

Let's hope for good news. □

LOU CAPOZZOLA

ERICK W. RASCO



TACKLING ISSUES Despite the Jets' training, helmet hits were in evidence last Saturday.

EARLY WARNING

EVEN AT THE PEEWEE LEVEL, COACHES STRUGGLE TO BALANCE SAFETY CONCERNS WITH TEACHING TOUGHNESS *By Farrell Evans*

IN MIKE SINGLETARY'S first training camp as 49ers coach, he used the hitting drill called nutcrackers to set a tone of physicality. For the Harlem Jets, the youth football organization for which I'm a defensive coordinator, nutcrackers is also one of the coaches' favorite drills. In our version two kids lie on their backs between two rows of teammates. When a coach blows the whistle, both players scramble to their feet, taking turns as ballcarrier or tackler. The drill is meant to teach speed and technique—and to weed out bad habits. The boys are told to lead with their shoulders and to keep their heads up through contact. Not a practice goes by that a coach doesn't stop the nutcrackers drill to correct a player for hitting with his head down.

I admit that as a defensive coach nothing excites me more than seeing one of my players deliver a big hit. When I tell my players, "I want to *hear* some football," they know I want them to raise the intensity. That might seem a primal way of cultivating toughness in an 11-year-old kid, but football is a violent and emotional game. Yet I realize I'm coaching at a time when the sport is being scrutinized as it hasn't been since Theodore Roosevelt contemplated banning football in 1905, a year when 18 players died from hits on the field. I have to balance my desire to produce little Ray Lewises or James Harrisons with my ultimate responsibility: ensuring the safety of these 10- to 12-year-olds.

In practical terms the best way to keep our kids safe is by teaching proper technique and making sure that they have effective equipment. Each year the Jets organization (which operates under the auspices of American Youth Football) ships its helmets to the Riddell company to be reconditioned and recertified under national guidelines.

Parents can help too. In the spring Erik Baker had his son, Jackson, 12, undergo the baseline cognitive testing that has become widespread at higher levels. "I wanted to make sure that if Jackson took a blow to the head, we wouldn't let him play again until he scored within the normal range of his preconcussive state," says Baker. "I know the risks, but to let him play I needed to have this done." Says Allan Ludgate, the father of Lucas, 10, "My concern is whether I know well enough and the coaches know well enough when a kid has had a concussion." At CPR training, coaches received information along those lines and were told to err on the side of caution—take the player out until he can be seen by a health professional.

One parent, however, isn't rattled by the talk of rules changes and safety concerns. "[The NFL has] looked at a few hits, and now they're going to tell a guy who has hit a certain way all his life to stop doing it," says Lamont Edwards, the father of 10-year-old Lamont Jr. "I want my son to learn the fundamentals, but I also want him to play it as a tough, physical game, because that's what separates it from most other sports." □

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+ CHECKLIST
Concussed Kids
A child's brain is a fragile thing, and too many are getting hurt

+ DR. OZ
Keeping It Safe
It's up to parents and coaches to know when a kid needs to sit it out

Headbanger Nation. Concussions are clobbering U.S. kids. Here's why

BY JEFFREY KLUGER

I DIDN'T GET A GOOD LOOK AT THE little boy who injured my daughter in the science museum in Mexico City. He seemed to be about 7, my daughter Elisa was not yet 3, and the two of them were part of a scrum of kids playing on an indoor patio. At precisely the wrong moment, she turned left, he turned right, and they collided. Physics being physics, the smaller mass yielded to the larger one, and my daughter fell down. She landed first on her bottom, then tipped backward and hit her head on the floor.

The sound was one that parents dread: the singular clunk of skull striking cement. I winced, Elisa wailed, and I gathered her up. Soon she stopped crying and went off to play, but even as she did, a dangerous process had begun to unfold inside her skull.

When Elisa's head hit the floor, the deceleration was sudden, but—physics again—her brain stayed in motion for an instant, moving through the small intracranial space until it collided with the back of the inside of her skull. Concussive energy radiated through the tissue. As it did, channels in the neurons opened wide, allowing calcium ions to flow into the cells, depressing their ability to metabolize energy. Brain tissue began swelling, but with nowhere to go, it squeezed up against the skull wall. Shearing forces tore axons connecting the cells, damaging their myelin sheathing, which can disrupt nerve signals. All of that was the best-case scenario. The worst case was a brain bleed, which could be fatal without immediate surgery.

Within 20 minutes, Elisa grew withdrawn. An hour later, back in our hotel, she vomited and then began thrashing convulsively. We rushed her to a hospital, where doctors struggled to get a line into one of the tiny veins in her arm, shouting at her to stay awake.

"Open your eyes!" I shouted at her in English. *"Abre tus ojitos!"* my wife echoed. Elisa understood both languages; she answered in neither.

Finally, the doctors got her into a CT scanner, then administered an EEG. There

3.8 MILLION
Number of Americans who sustain concussions per year—and there may be untold others that go unreported

see without a postmortem exam, but three noninvasive techniques can help sidestep that problem. Magnetic resonance spectroscopy measures not direct damage to the brain but its metabolic activity—a good way to evaluate the very system that breaks down first when a brain is concussed. Diffusion tensor imaging can observe transmission along nerve-fiber tracks, providing a sense of the integrity of the neural wiring. And resting fMRI allows physicians to watch the brain when it's not performing a task, providing a look at basic function.

Changing the Rules

SMART MEDICINE, OF COURSE, CAN DO ONLY so much to reverse the number of concussions. Smart policy must do the rest. To keep kids from hurting themselves—and to prevent coaches from enabling them—10 states, including New Jersey, Oregon, Virginia and football-mad Oklahoma, have passed return-to-play laws requiring kids who have sustained even a suspected concussion in any sport to be pulled from play and not returned until a doctor or certified athletic trainer declares them fit. A handful of other states are considering similar legislation, and last year two separate bills along the same lines were introduced in the House of Representatives. Both will have to be resubmitted under the new GOP majority. Still, the national trend is clear: "When in doubt, sit them out" is how the advocates put it.

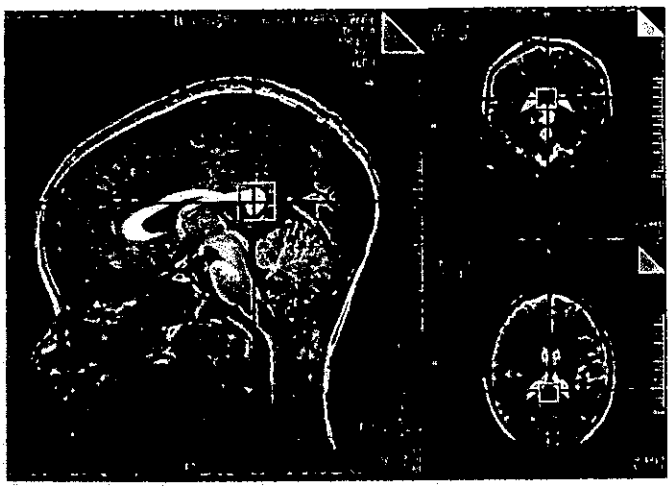
Most major professional sports leagues in the U.S., as well as most large universities and 4,000 high schools, now also use a computer program known as ImPACT (for Immediate Post-Concussion Assessment and Cognitive Testing) that measures such basic skills as memory, word recognition and pattern recognition. Players are required to take a baseline test at the beginning of the season and are periodically retested, especially post-concussion, to determine if there's been any erosion of skills. "I used to sit across from athletes doing paper-and-pencil memory tests," says ImPACT developer Mark Lovell, a neuropsychologist at the University of Pittsburgh Medical Center. "That would never work with large groups of kids. There aren't that many neuropsychologists alive."

The football helmet was designed to prevent lacerations and fractures—which it does very well—but it does little or nothing to prevent concussions

Reform is also coming—slowly—to the major manufacturers of football helmets, driven mostly by the NFL, which has imposed much stricter concussion and tackling rules in the past season. The NFL is anxious both to protect its players and to shake its image as a weekly tutorial for student athletes learning all the wrong safety lessons from pros who should know better. Currently, the group that certifies helmets is the National Operating Committee on Standards for Athletic Equipment (NOCSAE), which sounds reassuringly official except for the fact that it's essentially funded by the manufacturers themselves. NOCSAE has come under fire not only for this seeming conflict of interest but also for what critics consider unreliable testing. The larger problem, though, is that the standard football helmet was designed to prevent only lacerations and fractures—a job it does very well—and to do little or nothing to prevent concussions. "The science just isn't there today," says Dr. Robert Cantu, a neurosurgeon at Boston University and a member of NOCSAE's board.

That's not NOCSAE's or the NFL's fault, but they're trying to do something about it. In December the league and the helmet manufacturers convened a sort of head-injury summit in New York—a gathering that also included officials from NASCAR and the military—to consider helmet modifications that could reduce the concussive carnage. For football, those modifications could include better padding, stronger chin straps and redesigned face masks that distribute shock differently. Kids' helmets must also be more than simply smaller versions of those used by adults. The padding inside all helmets is designed to compress at the forces generated by colliding adult bodies. With the smaller forces kids produce, the padding stays rigid, essentially becoming one more hard surface for the head to strike. Innovations introduced in football could ripple out to other sports' playing fields, to say nothing of battlefields.

Athletics will never be stripped of all danger, and terrible as the blown knee or wrecked elbow may be, there is always an assumption of those risks when you elect to play the game. But the brain is more than a joint or a limb. It's the seat of the self. We overlook that fact at our peril and—much worse—at our children's. ■



A Look Inside. New brain scans are making it easier to spot concussions

Magnetic resonance spectroscopy (MRS) Traditional magnetic resonance imaging (MRI) is not able to pick up the microscopic physical changes caused by a concussion. MRS *(left)* can't either, but it can assess the brain's metabolic function. That's key, since the metabolic system falters when a brain is concussed. Unhealthy metabolism means an injured brain

Diffusion tensor imaging (DTI) Axons, which transmit impulses between brain cells, can be damaged by a concussion. Those fibers are too small to see, but DTI reveals how well they're functioning by tracking the movement of water along them. For the brain to function well, water must move smoothly among its various regions

Resting functional magnetic resonance imaging (fMRI) Ordinary fMRI reveals how the brain functions when it's presented with a cognitive task such as reading or problem solving. Resting fMRI looks at the brain in its quiet state—when it's being asked to do nothing at all. That provides a better look at its underlying integrity

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May 10, 2011

Researchers Employ New Test to Estimate Concussion Risk for Helmets

By ALAN SCHWARZ

Football equipment managers nationwide will receive yet another reason to reassess their helmet inventory on Tuesday, when a Virginia Tech research report reveals that two models popular among teenagers might be allowing high rates of concussions.

The Riddell VSR-4, a recently discontinued model still worn by about 75,000 high school and college players, and the Adams A2000, a less prevalent helmet now available for purchase, were the lowest-ranked models in a new testing regimen designed to estimate concussion risk. The full results were to appear on a Virginia Tech Web site as the first publicly available objective data on football helmet performance.

Industry experts have various degrees of concern about the reliability of the system, but the researchers said they were trying to pull the curtain back on the mysteries of helmet performance. Recent concerns about industry testing standards and specific companies' advertising has led to an investigation by the United States Consumer Product Safety Commission and possibly the Federal Trade Commission.

"Currently, if you go to buy a helmet, all you're looking at are aesthetics and price, and whatever the manufacturer tells you to try to convince you it's good," said Stefan Duma, Virginia Tech's lead biomedical engineer on the project. "We wanted to develop a system to quantify which helmets perform better specifically with risk of concussion."

The only standardized test on helmets today assesses whether a helmet might allow a skull fracture, not a less serious injury like a concussion. It is overseen by the National Operating Committee on Standards for Athletic Equipment, a volunteer group that includes manufacturers and other interested parties.

Riddell's Revolution Speed model earned a five-star rating on the Virginia Tech scale, followed by five four-star helmets made by Riddell, Schutt and Xenith. Only helmets designed for players of high school age and older were examined.

"For example, half our team is in the VSR-4 — and there is a significant reduction in

testing data to the public because of how it can be misinterpreted. This has led to spurious advertising claims and other practices currently under government examination.

Duma said the public needed an independent compass to make more educated decisions on football head protection. He also emphasized how even the best head protection can still allow injuries like concussions and that individual athletes' risks can vary because of genetic differences and prior injuries.

References for Return to Play Guidelines/Concussion Recovery Issues in High School Athletes

Stuart J. Glassman, MD
Granite Physiatry, PLLC
Concord, NH
August 2010

1. 'Recovery From Mild Concussion in High School Athletes' (Lovell, Collins, Journal of Neurosurgery 2003;98:295-301): "Duration of on field mental status changes was related to the presence of memory impairment at 36 hours, 4 days and 7 days post injury. Self reported neurological symptoms resolved by day 4. Statistically significant differences between pre-season and post-injury memory test results were still evident at 7 days post injury. The results of this study suggest that caution should be exercised in returning concussed high school athletes to the playing field following concussion. "

2. 'Heads Up: Concussions in High School Sports' (Theye, Mueller, Clinical Medicine & Research 2004 August; 2(3): 165-171): "High school athletes even 7 days following concussion perform worse than age-matched controls on measures of neurocognitive function. Evidence has also been reported that symptoms of concussions resolve more slowly in the adolescent athlete as compared to collegiate athletes. High school players showed significant memory impairment at day 7, while the college athletes showed similar deficits only within 24 hours post injury."

3. 'Concussion in Professional Football: Recovery of NFL and High School Athletes Assessed by Computerized Neuropsychological Testing-Part 12' (Pellman, Lovell, Neurosurgery. 2006 Feb; 58(2): 263-74): "High school athletes demonstrated a slower recovery than NFL athletes, and demonstrated more prolonged neuropsychological effects of concussion."

4. 'Return-To-Play Criteria After Athletic Concussion' (Mayers, Archives of Neurology, Vol. 65 No.9, Sept. 2008): "A variety of assessment techniques applied to athletes with concussion have measured significant degrees of functional abnormality persisting beyond the usual RTP intervals (1-2 weeks) supported by current guidelines. If one accepts the American Academy of Neurology definition that concussion is a trauma-induced alteration of mental status, the cited studies indicate that cerebral dysfunction persists for at least 1 month after injury. This indicates that safe RTP might require at least 4-6 weeks to facilitate more complete recovery and to protect from reinjury, reported by Guskiewicz et al to occur much more frequently in the immediate period after a concussion. Given the prevalence of sports head injury and he numbers of young brains at risk, a postconcussion RTP of at least 4 weeks is imperative"

5. 'Concussion: A Coach's Guide For Sideline Evaluation' (Massachusetts Medical Society Committee on Student Health and Sports Medicine, 2008): "The athlete may feel like he or she is just 'kind of out of it' or off balance. These are the concussions where the symptoms can 'clear' in 15 to 20 minutes. But there may still be injury occurring in the adolescent brain, and recommendations now are to treat these young players more conservatively than in athletes over the age of 18. He or she should not return to athletic activity for a minimum of five to seven days after all symptoms have disappeared."

6. 'Recovery from Concussion In Athletes: How Long Does it Take?' (Lovell, Collins, UPMC Center for Sports Concussion Program, 2008): "Average cognitive resolution for 208 high school concussed athletes was 26 days, as compared to 17 days for symptom resolution".

7. 'Study: Kids Competing Too Soon After Concussions' (Gregory, www.time.com, Jan. 21, 2009): "According to an alarming new study, from 2005-2008, 41% of concussed athletes in 100 high schools across the U.S. returned to play too soon, under guidelines set out by the American Academy of Neurology. Research indicates that younger, less developed brains are at greater risk of second-impact syndrome, which is why the new concussion study from the Center for Injury Research and Policy at Nationwide Children's Hospital in Columbus, Ohio is so troubling."

8. 'What Are The Most Appropriate Return-to-Play Guidelines for Concussed Child Athletes?' (Purcell, Br J Sports Med 2009; 43: i51-i55): "Agreement exists that more conservative RTP decisions should be used in the paediatric age group. Caution is justified because of the cumulative effects of repeated concussion and because of the increased vulnerability to additional injury. The Canadian Paediatric Society guidelines suggest that athletes should be symptom free for several days before attempting to start the exertion protocol. If any symptoms occur in the stepwise exertion protocol, the athlete should rest for 24-48 hours and try to progress again."

9. 'N.J. Parents File Lawsuit for Son Being Cleared after Concussion' (Epstein, Armstrong, Sl.com, Oct. 9, 2009): "A year after his death, Ryne Dougherty's parents have filed a lawsuit against Monclair High and their son's physician, who they say cleared him to play after the concussion. The lawsuit alleges that Dougherty failed the baseline ImPACT test, which was deemed invalid because a disruptive athlete distracted test-takers. His test was never evaluated, and the score was deemed void. It is unclear whether his personal physician was given the results of the ImPACT test. He was never retested, and was cleared to play 4 days after his baseline test, even though he complained of fatigue from a concussion suffered 2 weeks earlier. He

sustained a fatal blow in a game one week after being cleared to return to play. "

10. 'New Rules for Football Concussions' (Shaw, WebMD, Dec. 4, 2009): "'A major problem for young athletes, says Anthony Alessi, MD, who co-chairs the American Academy of Neurology's Sports Neurology section, is that high school and even some college programs lack the resources necessary to protect their players from concussion. Athletes will tell you they're fine. Kids think they're invincible. If all you're doing is asking them whether their headache's gone, you're letting a teenager manage his own brain injury. Many former players, still young, report persistent headaches, fatigue, difficulty paying attention, memory problems, mood swings and personality changes. Much less is known about how repeat concussions, especially those that are not properly managed, affect high school and college athletes over the long term."

11. 2010 NHIAA Adopts the NFHS Guidelines for Management of Concussion in Sports (Feb. 2010): "The guidelines regarding concussion management as published by the National Federation of State High School Associations in 2009 were adopted as minimum mandatory standards to be utilized by all NHIAA member schools. Once the athlete is able to complete a full day of school work, without PE or other exertion, the athlete can begin the gradual return to play protocol. "

12. 'Study Highlights Frequency of Concussions in High School Athletes" (Tumulty, USA Today, 5/20/2010): "A recent clinical study by the Children's National Medical Center in Washington found that more than 80% of student athletes who experienced concussion reported a significant worsening of symptoms over the first four weeks after attempting to return to school academics. 'The typical concentration and memory requirements of school place significant demands on the brain's biological software', says Gerard Gioia, chief of pediatric neuropsychology at Children's National Medical Center, in testimony before the House Education and Labor Committee. 'When these cognitive demands are placed on a brain in an impaired state, the result is an increase in post-concussive symptoms'."

13. 'Return to Play Guidelines for Concussed Athletes Key Part of Discussion' (Earthtimes.org, August 5,2010): "The New Jersey State Interscholastic Athletic Association's concussion policy requires athletes to sit out a minimum of 12 days. The 12 days include being symptom free for seven consecutive days and engaging in a graduated-intensity exercise program without concussion symptoms for five consecutive days."

Voting Sheets

HOUSE COMMITTEE ON EDUCATION

EXECUTIVE SESSION on SB 95

BILL TITLE: **(New Title) establishing a commission to study youth sports concussions and other concussions received while at school.**

DATE: 5/17/11

LOB ROOM: 207

Amendments:

Sponsor: Rep. OLS Document #:

Sponsor: Rep. OLS Document #:

Sponsor: Rep. OLS Document #:

Motions: OTP, OTP/A, ITL, Interim Study (Please circle one.)

Moved by Rep. Boehm

Seconded by Rep. Ladd

Vote: 13-3 (Please attach record of roll call vote.)

Motions: OTP, OTP/A, ITL, Interim Study (Please circle one.)

Moved by Rep.

Seconded by Rep.

Vote: (Please attach record of roll call vote.)

CONSENT CALENDAR VOTE: Unanimous

(Vote to place on Consent Calendar must be unanimous.)

Statement of Intent: Refer to Committee Report

Respectfully submitted,

Rep. Rick Ladd, Clerk

HOUSE COMMITTEE ON EDUCATION

EXECUTIVE SESSION on SB 95

BILL TITLE: **(New Title) establishing a commission to study youth sports concussions and other concussions received while at school.**

DATE: 5/17/2011 1:25 – 1:39

LOB ROOM: 207

Amendments:

Sponsor: Rep. OLS Document #:

Sponsor: Rep. OLS Document #:

Sponsor: Rep. OLS Document #:

Motions: OTP, OTP/A, ITL, Interim Study (Please circle one.)

Moved by Rep. Boehm

Seconded by Rep. Ladd

Vote: 13-3 (Please attach record of roll call vote.)

Motions: OTP, OTP/A, ITL, Interim Study (Please circle one.)

Moved by Rep.

Seconded by Rep.

Vote: (Please attach record of roll call vote.)

CONSENT CALENDAR VOTE:

(Vote to place on Consent Calendar must be unanimous.)

Unanimous Boehm

Statement of Intent: Refer to Committee Report

Respectfully submitted,

Rep. Rick Ladd, Clerk

EDUCATION

Bill #: SB 95 Title: Concessions

PH Date: 5/10/11 Exec Session Date: 5/17/2011

Motion: ITL Boehm/Ladd Amendment #:

MEMBER	YEAS	NAYS
Balboni, Michael A, Chairman	✓	
Boehm, Ralph G, V Chairman	✓	
Hutchinson, Karen K	PASS	
Ladd, Rick M	✓	
Fleck, Joseph W	✓	
St. Cyr, Jeffrey L	✓	
Brosseau, Charles J	✓	
Greemore, Robert H	✓	
Hill, Gregory	✓	
Hoell, J.R.	✓	
Jones, Laura M	✓	
Lauer-Rago, Kathleen A	✓	
Pitre, Joseph A	✓	
Gile, Mary Stuart		✓
~~Shaw, Barbara E~~ Grassi, Conn		✓
Gorman, Mary J	✓	
Frazer, June M		✓
	13	3

TOTAL VOTE:

Printed: 1/4/2011

Committee Report

CONSENT CALENDAR

May 18, 2011

HOUSE OF REPRESENTATIVES

REPORT OF COMMITTEE

The Committee on EDUCATION to which was referred SB95,

AN ACT (New Title) establishing a commission to study youth sports concussions and other concussions received while at school. Having considered the same, report the same with the following Resolution:

RESOLVED, That it is INEXPEDIENT TO LEGISLATE.

Rep. Ralph G Boehm

FOR THE COMMITTEE

Original: House Clerk
Cc: Committee Bill File

COMMITTEE REPORT

Committee:	**EDUCATION**
Bill Number:	**SB95**
Title:	**(New Title) establishing a commission to study youth sports concussions and other concussions received while at school.**
Date:	**May 18, 2011**
Consent Calendar:	**YES**
Recommendation:	**INEXPEDIENT TO LEGISLATE**

STATEMENT OF INTENT

Concussions are being studied across the country by professional and college sports. We do not need to do it also. The New Hampshire Interscholastic Athletic Association (NHIAA) has adopted the very strict National Federation of state High Schools (NFHS) guidelines on handling concussions. These guidelines include cognitive abilities that have to be met before the student can even return to exercise for a sport. The NHIAA also has guidelines for any injury during a practice or game. It is no longer up to the coach, athlete, or even the parents, a licensed medical professional has to give the okay, and every high school has to have one available for all practices and games. Gone are the days of "I'm okay coach put me in."

Vote 13-3.

Rep. Ralph G Boehm
FOR THE COMMITTEE

Original: House Clerk
Cc: Committee Bill File

CONSENT CALENDAR

EDUCATION

SB95, (New Title) establishing a commission to study youth sports concussions and other concussions received while at school. **INEXPEDIENT TO LEGISLATE.**
Rep. Ralph G Boehm for EDUCATION. Concussions are being studied across the country by professional and college sports. We do not need to do it also. The New Hampshire Interscholastic Athletic Association (NHIAA) has adopted the very strict National Federation of state High Schools (NFHS) guidelines on handling concussions. These guidelines include cognitive abilities that have to be met before the student can even return to exercise for a sport. The NHIAA also has guidelines for any injury during a practice or game. It is no longer up to the coach, athlete, or even the parents, a licensed medical professional has to give the okay, and every high school has to have one available for all practices and games. Gone are the days of "I'm okay coach put me in." **Vote 13-3.**

Original: House Clerk
Cc: Committee Bill File

COMMITTEE REPORT

COMMITTEE: Education

BILL NUMBER: SB 95

TITLE: AN ACT ESTABLISHING A COMMISSION TO STUDY YOUTH SPORTS CONCUSSIONS Received While AT School

DATE: 5/17/2011 **CONSENT CALENDAR:** YES ☒ NO ☐

☐ **OUGHT TO PASS**

☐ **OUGHT TO PASS W/ AMENDMENT**

☒ **INEXPEDIENT TO LEGISLATE**

☐ **INTERIM STUDY** (Available only 2nd year of biennium)

Amendment No. _____

STATEMENT OF INTENT:

See ATTached

COMMITTEE VOTE: 13-3

- Copy to Committee Bill File
- Use Another Report for Minority Report

RESPECTFULLY SUBMITTED,

Rep. Ralph G Boehm
For the Committee

Rev. 02/01/07 - Yellow

SB 95
ITL
Vote: 13-3
CC

Concussions are being studied across the country by professional and college sports. We do not need to do it also. The New Hampshire Interscholastic Athletic Association (NHIAA) has adopted the very strict National Federation of state High Schools (NFHS) guidelines on handling concussions. These guidelines include cognitive abilities that have to be met before the student can even return to exercise for a sport. The NHIAA also has guidelines for any injury during a practice or game. It is no longer up to the coach, athlete, or even the parents, a licensed medical professional has to give the okay, and every high school has to have one available for all practices and games. Gone are the days of "I'm okay coach put me in."

Ralph Boehm